



South Carolina Department of Health
and Environmental Control

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MEMORANDUM

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Bureau of Land and Waste Management

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SUBJ Evaluation of Siemens Energy and Automation, Inc 's status under the RCRIS
Corrective Action Environmental Indicator Event Codes (CA725 and CA750)
EPA ID Number SCD 078 065 117

I. PURPOSE OF MEMO

This memo is written to formalize an evaluation of Siemens Energy and Automation, Inc 's status in relation to the following RCRIS corrective action codes

- 1) Human Exposures Controlled Determination (CA725),
- 2) Groundwater Releases Controlled Determination (CA750)

The applicability of these event codes adheres to the definitions and guidance provided by the Office of Solid Waste (OSW) in the July 29, 1994, memorandum to the Regional Waste Management Division Directors

The State of South Carolina became authorized, in January 1995, for implementing those portions of RCRA covered under the HSWA Corrective Action process. The recommendations provided in this document have been generated through the use of EPA's current Environmental Indicator ranking system.

II. HUMAN EXPOSURES CONTROLLED DETERMINATION (CA725)

There are three (3) national status codes under CA725. These status codes are:

- 1) YE Yes, applicable as of this date
- 2) NA Previous determination no longer applicable as of this date
- 3) NC No control measures necessary

The State of South Carolina, in conjunction with the EPA, Region 4, has also added a regional status code to CA725 which tracks initial evaluations in which a determination is made that plausible human exposures to current contamination risks are not controlled. This regional status code is listed as "NO, not applicable as of this date." Use of the regional status code is only applicable during the first CA725 evaluation. Evaluations subsequent to the first evaluation will use the national status codes (i.e., YE, NA and NC) to explain the current status of exposure controls.

Note that the three national status codes for CA725 are based on the entire facility (i.e., the codes are not SWMU specific). Therefore, every area at the facility must meet the definition before a YE, NA or NC status code can be entered for CA725. Similarly, the regional status code, NO, is applicable if plausible human exposures are not controlled in any areas of the facility.

This particular CA725 evaluation is the first evaluation performed by SCDHEC for Siemens Energy and Automation, Inc. Because assumptions have to be made as to whether or not human exposures to current media contamination are plausible and, if plausible, whether or not controls are in place to address these plausible exposures, this memo first examines each environmental media (i.e., soil, groundwater, surface water, air) at the entire facility including any offsite contamination emanating from the facility rather than from individual areas or releases. After this independent media by media examination is presented, a final recommendation is offered as to the proper CA725 status code for Siemens Energy and Automation, Inc.

The following discussions, interpretations and conclusions on contamination and exposures at the facility are based on the following reference documents

Corrective Action Report Second Quarter 1996 (July 23, 1996)

Report of Phase I Off-Site Groundwater Assessment

and On-Site Monitoring Well Installation (January 1996)

Second Status Report Phase II RFI (November 7, 1996)

Corrective Action Report and RFI Status Report First Quarter 1997 (April 30, 1997)

Corrective Action Report and RFI Status Report Second Quarter 1997 (August 8, 1997)

III. MEDIA BY MEDIA DISCUSSION OF CONTAMINATION AND THE STATUS OF PLAUSIBLE HUMAN EXPOSURES

Groundwater

Groundwater is contaminated and some plausible human exposures are not controlled. Releases from SWMUs and/or AOCs have contaminated groundwater at concentrations above relevant action levels. The groundwater is contaminated with chlorinated solvents, primarily 1,1,1-trichloroethane (1,1,1 TCA) and 1,1-dichloroethene (1,1 DCE), but including 1,1-dichloroethane (1,1 DCA), chloroform, and methylene chloride. 1,4-Dioxane has been detected in recent (beginning in the fourth quarter of 1996) sampling events, above a relevant action level (EPA Region III Risk Based Concentrations (RBCs)). Chromium and nickel are also detected above relevant action levels (Maximum Contaminant Levels (MCLs)).

The highest concentrations of chlorinated solvent contaminated groundwater are detected in the shallow saprolite aquifer beneath the Batch Dump Lagoon. Groundwater samples obtained beneath the Batch Dump Lagoon, using direct push techniques, have exhibited total VOC groundwater concentrations in excess of 90,000 ug/l (1,1,1 TCA-79,000 ug/l, 1,1-DCE-11,000 ug/l). Chlorinated organics have contaminated the upper and lower saprolite aquifers (combined thickness is 50 to 100 feet), and, to some extent, the bedrock aquifer. The plume extends downgradient from the batch dump lagoon an approximate distance of 600-700 feet, and is approximately 500 feet wide in the lower saprolite aquifer. The plume is primarily confined to property owned by Siemens, but does extend offsite, beyond the facility property boundary for approximately 100 feet. 1,1 DCE has been detected in off-site monitoring well MW-16 at concentrations exceeding the MCL of 7 ug/l.

Siemens limits access to facility property with fences and 24 hour security, which prevents on-site human exposure to contaminated groundwater. At this time, however, Siemens does not own the adjacent property, and cannot prevent the installation of wells on that property in areas in which the plume has migrated off-site. It is not clear, at this time, if the currently operating

groundwater extraction system exerts hydrological control over the portion of the plume extending off-site. For this reason, plausible human exposures to contaminated groundwater are not controlled.

Surface Water

Surface water is not contaminated and is not expected to become contaminated in the near future. A small creek, Reedy Creek, is located downgradient of the facility. Contaminated groundwater has not reached the creek at the present time. The groundwater extraction system operating at the facility appears to exert sufficient hydrological influence to prevent the discharge of contaminated groundwater to the surface water. Because contamination is not reasonably expected to have occurred, there are no plausible human exposures which must be controlled due to contaminated surface water.

Soil

Soil is contaminated onsite, and plausible human exposures are controlled by access controls. Soils situated beneath the Batch Dump Lagoon have been contaminated by releases of hazardous constituents from the lagoon. Specifically, soils are contaminated primarily with 1,2 DCA, 1,1 DCE, and 1,1,1 TCA, with smaller amounts of ethyl benzene, tetrachloroethene (TCE), and 1,1,2 TCA. The soil concentrations of chlorinated organics tend to increase with depth beneath the Batch Dump Lagoon. In soil boring BD3 (figure 1, *Second Status Report Phase II RFI* (November 7, 1996)), soil concentrations of 1,1,1 TCA are 10,000 ug/kg for the 8'-10' sampling interval, and 59,000 ug/kg for the 20'-22' sampling interval (Region III industrial soil ingestion RBC=72,000 ug/kg). Surficial soils do not appear to be contaminated. The Batch Dump Lagoon is capped with clean soils and an asphalt RCRA cap, preventing human exposure. The RCRA cap, in conjunction with the access controls (fencing, security) at the facility, prevents plausible human exposures which must be controlled due to contaminated soil associated with the Batch Dump Lagoon.

Currently occurring RCRA Facility Investigation (RFI) activities indicate that soils in the vicinity of the abandoned process waste treatment SWMU's (cyanide destruction basin, nitric acid batch dump basin, equalization basin, metals basin, and clarifier) do have levels of metals concentrations that are elevated above background. At the present time, no soil metals concentrations have been discovered above relevant action levels. Arsenic was detected in one soil boring at 11 mg/kg in the 0-4' sampling interval, above background concentrations, but below the Region III industrial RBC of 610 mg/kg. Chromium has been detected in the 8-12' sampling interval at 380 mg/kg, and in the 12-16' interval at 390 mg/kg, below the Region III industrial RBC of 10,000 mg/kg. Copper and silver have been detected at 680 mg/kg and 150 mg/kg, respectively, detections that are above background concentrations, but below the respective industrial RBCs of 82,000 mg/kg and 10,000 mg/kg. Because no soil metals concentrations have

been detected above relevant action levels (industrial RBCs), and any soil metals concentrations that approach relevant action levels are typically buried at a depth of 8-10', plausible human exposures to metals from soils in the vicinity of the abandoned process waste treatment SWMUs are, at the present time, considered controlled

Air

Releases to air from soil, groundwater, and/or surface water contaminated by SWMUs and/or AOCs at the facility is not expected to be occurring above relevant action levels. Therefore, there is no human exposure to contamination via an air route.

IV. STATUS CODE RECOMMENDATION FOR CA725:

CA725 NO

V. GROUNDWATER RELEASES CONTROLLED DETERMINATION (CA750)

There are three (3) status codes listed under CA750

- 1) YE Yes, applicable as of this date
- 2) NA Previous determination no longer applicable as of this date
- 3) NR No releases to groundwater

The State of South Carolina, in conjunction with the EPA, has also added an additional status code which tracks the initial evaluations in which a determination is made that groundwater releases are not controlled. This regional status code is listed as "NO, not applicable as of this date." Use of the regional status code is only applicable in the first CA750 evaluation. Evaluations subsequent to the first evaluation will use the national status codes (i.e., YE, NA and NR) to explain the current status of groundwater control.

Note that the three national status codes for CA750 are designed to measure the adequacy of actively or passively controlling the physical movement of groundwater contaminated with hazardous constituents above relevant action levels. The point where the success or failure of controlling the migration of hazardous constituents is measured is termed the designated boundary (e.g., the facility boundary, a line upgradient of receptors, the leading edge of the plume as defined by levels above action levels or cleanup standards, etc.). Therefore, every contaminated area at the facility must meet the definition before these event/status codes can be entered.

Similarly, the regional status code is applicable if contaminated groundwater is not controlled in any area(s) of the facility

This evaluation for CA750 is the first formal evaluation performed for Siemens Energy and Automation, Inc. Please note that CA750 is based on the adequate control of all contaminated groundwater at the facility

The following discussions, interpretations and conclusions on contaminated groundwater at the facility are based on the following reference documents

Corrective Action Report Second Quarter 1996 (July 23, 1996)

Report of Phase I Off-Site Groundwater Assessment

and On-Site Monitoring Well Installation (January 1996)

Second Status Report Phase II RFI (November 7, 1996)

Corrective Action Report and RFI Status Report First Quarter 1997 (April 30, 1997)

Corrective Action Report and RFI Status Report Second Quarter 1997 (August 8, 1997)

Based on data contained in the documents referenced in Section V, and summarized in the groundwater portion of Section III, releases from SWMUs and/or AOCs have contaminated groundwater at concentrations above relevant action levels. Groundwater is contaminated above relevant action levels, and it is not clear that presently existing control measures are effective in controlling the off-site migration of contaminated groundwater. Because all groundwater contamination at, or emanating from, the facility is not controlled and this is the first evaluation for this facility, it is recommended that CA750 NO be entered into RCRIS.

VI. STATUS CODE RECOMMENDATION FOR CA750:

CA750 NO

cc

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Docket File